



# Software Installation Guide for the QLA2200/2200F/2202F

Fibre Channel Host Adapter Boards  
for the PCI Bus

*FC0153302-00 B*  
*May 24, 1999*

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#### Document Revision History

Rev. A initial release, 4/29/99
Rev. B update, 5/24/99 (QLA2202F board added)
Drivers Affected for the Following Operating Systems
SCO UnixWare 7.0 and 7.1 Windows NT 4.0 Novell NetWare 4.1X and 5.X Windows 95/98

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# Section 1

## Introduction

**NOTE:** Software installation instructions for the following QLogic host adapter boards (collectively referred to as the *QLA22xx board*) are covered in this manual.

QLA2200 (64-bit PCI to Fibre Channel copper media)  
QLA2200F (64-bit PCI to Fibre Channel optical media)  
QLA2202F (64-bit PCI to dual channel optical media)

### 1.1

#### Before You Begin

After successfully installing your QLA22xx board, you are ready to install the software drivers you need for the QLA22xx board to communicate between your host machine and the desired peripherals.

### 1.2

#### Before You Install

Before you install the software drivers, you need to:

- ☐ Locate and make backup copies of the QLogic software drivers diskettes included with the QLA22xx board. You should have two diskettes:
  - ☐ SCO UnixWare 7 qlc2200 (referred to as the *QLogic SCO UnixWare driver diskette*)
  - ☐ NT-NetWare-OS/2-Win9X (referred to as the *QLogic software drivers diskette*)
- ☐ Read through this guide to determine which drivers you want to install.

If you have QLogic DOS drivers (Windows NT, NetWare, or Windows 9X) already installed on your system, you can check the driver versions by performing the following procedure:

1. Place the QLogic software drivers diskette in an appropriate drive.
2. Copy the QLVER.EXE file from the diskette into the directory with the QLogic drivers. For example:

```
COPY A:QLVER.EXE C:\QLC\QLVER.EXE
```

3. Change directories to the subdirectory containing the QLogic drivers. For example:

```
CD \QLC
```

4. At the prompt type:

```
QLVER *.*
```

A QLogic banner is displayed, followed by the drivers and their corresponding version numbers. For more information about QLVER.EXE, use the /h (help) parameter. For example:

```
QLVER /h
```

**NOTE:** The latest versions of the software drivers and documentation are available on the QLogic web site, <http://www.qlc.com>.

### 1.3

## General Description

Software drivers for the following operating systems are provided with your QLA22xx board:

- ☐ Santa Cruz Operations (SCO) UnixWare versions 7.0 and 7.1
- ☐ Windows NT version 4.0
- ☐ Novell NetWare versions 4.1X and 5.X
- ☐ Windows 95/98

## Section 2

# SCO UnixWare Driver Installation

### 2.1

#### Introduction

This section provides instructions for installing the SCO UnixWare driver under the following operating system conditions:

- ☐ Initial installation of SCO UnixWare 7.0 and the qlc2200 driver
- ☐ Initial installation of SCO UnixWare 7.1 and the qlc2200 driver
- ☐ Installation of the qlc2200 driver in an already installed SCO UnixWare 7.0 or 7.1 system

If SCO UnixWare is not installed on your system, perform the installation procedures in section 2.2 (SCO UnixWare 7.0) or section 2.3 (SCO UnixWare 7.1). If SCO UnixWare (7.0 or 7.1) is already installed, perform the installation procedures in section 2.4.

**NOTE:** The QLogic SCO UnixWare 7 qlc2200 driver diskette (referred to as the *QLogic SCO UnixWare driver diskette*) cannot be read from a DOS environment.

The installation of host adapter boards and devices is covered in detail in the SCO UnixWare documentation. See the following topics for more information.

- ☐ Using boot-time loadable drivers (*Installation Guide*)
- ☐ Adding hard disks and CD-ROM drives (*System Administrator's Guide*)

### 2.2

#### Installing SCO UnixWare 7.0 and the qlc2200 Driver

Perform the following steps to install SCO UnixWare 7.0 and the qlc2200 driver.

1. Follow the installation instructions that come with the SCO UnixWare 7.0 installation diskettes. During the installation, you will be prompted to install the driver for the QLA22xx board.

When installing SCO UnixWare 7.0, the following choices appear (the asterisk is the system default):

- ( ) Install HBA diskette
- (\*) Proceed with installation

2. Remove the SCO UnixWare 7.0 installation diskette and insert the QLogic SCO UnixWare driver diskette.

Select `Install HBA diskette`. Press the <F10> function key to continue; the qlc2200 driver is automatically installed.

## 2.3

### Installing SCO UnixWare 7.1 and the qlc2200 Driver

Perform the following steps to install SCO UnixWare 7.1 and the qlc2200 driver.

1. Follow the installation instructions that come with the SCO UnixWare 7.1 installation diskettes. During the installation, you will be prompted to install the driver for the QLA22xx board.

When installing SCO UnixWare 7.1, the following choice appears:

```
Please insert your first HBA diskette. This may
be a vendor-supplied HBA if you have one,
otherwise insert the diskette labeled:
```

```
UnixWare 7.1 Host Bus Adapter Diskette for
Release 7.1
```

2. Remove the SCO UnixWare 7.1 installation diskette and insert the QLogic SCO UnixWare driver diskette.

Select `Install HBA diskette`. Press the <F10> function key to continue; the qlc2200 driver is automatically installed.

## 2.4

### Installing the qlc2200 Driver

Perform the following steps to install the qlc2200 driver in a previously installed SCO UnixWare 7.0 or 7.1 system.

1. Make sure you have root privileges.
2. Enter the following text at the prompt to run the pkgadd program:

```
pkgadd -d diskette1
```

3. The following prompt appears:

```
Insert diskette into Floppy Drive 1.
Type [go] when ready,
or [q] to quit: (default: go)
```

4. Insert the QLogic SCO UnixWare driver diskette into drive 1 and press the return key [go].

5. You are prompted to select a driver package. For example:

```
Installation in progress. Do not remove the
diskette.
```

```
The following packages are available:
```

```
1  qlc2200      QLogic QLA2200/2200F/2202F
                IHV HBA (i386) 3.01
```

```
Select packages(s) you wish to process (or 'all'
to process all packages). (default: all)
[?,??,quit]:
```

6. Type 1 and press the return key to install the qlc2200 driver.

7. When the driver is installed, the following prompt appears:

```
Installation of QLogic QLA2200/2200F/2202F IHV
HBA (qlc2200) was successful.
```

```
Insert diskette into Floppy Drive 1.
```

```
Type [go] when ready,
or [q] to quit: (default: go)
```

8. Type q and press the return key to exit the installation program.

9. Remove the QLogic SCO UnixWare driver diskette.

10. Reboot the system to load the driver.



## *Section 3*

# Windows NT Driver Installation

### 3.1

#### **Introduction**

This section provides instructions for installing the Windows NT driver under the following operating system conditions:

- ☐ Initial installation of the Windows NT 4.0 operating system and the Windows NT driver
- ☐ Installation of the Windows NT driver in an already installed Windows NT 4.0 operating system
- ☐ Installing an updated Windows NT driver in an already installed Windows NT operating system that has an older version of the driver.

To install Windows NT 4.0 on your system, perform the installation procedures in section 3.3. If Windows NT 4.0 is already loaded on your system, perform the installation procedures in section 3.4. If Windows NT 4.0 and an older Windows NT driver are already installed on your system, perform the update procedures in section 3.5.

For information about enhanced scatter/gather in Windows NT, see section 3.6.

### 3.2

#### **Windows NT Driver Files**

The following files on the QLogic software drivers diskette are provided for installation of the Windows NT driver:

- ☐ TXTSETUP.OEM – driver installation script for initial Windows NT text setup
- ☐ QLOGIC – identification file for Windows NT setup program
- ☐ \NT\OEMSETUP.INF – driver installation script for the Windows NT setup program
- ☐ \NT\QL2200.SYS – Windows NT 4.0 driver
- ☐ \NT\README.TXT – helpful hints about the Windows NT driver

Be sure to review the README.TXT file for both new and changed information.

### 3.3

## Installing Windows NT and the Windows NT Driver

Perform the following steps to install Windows NT 4.0 on the Fibre Channel drive attached to the QLA22xx board.

1. Start the NT installation procedure using the NT setup diskettes.
2. After the standard devices have been detected and configured, use the *S* option to *Specify Additional Device*.
3. Select *Other*, then press the <ENTER> key.
4. Insert the QLogic software drivers diskette, then press the <ENTER> key.
5. Select *QLogic QLA2200 PCI Fibre Channel Adapter*, then press the <ENTER> key.
6. Continue with the standard installation procedure.

### 3.4

## Installing the Windows NT Driver

Perform the following steps to add the Windows NT driver to a previously installed Windows NT 4.0 system.

1. Select *My Computer* from the desktop.
2. Select *Control Panel*.
3. Select *SCSI Adapters*.
4. Select the *Drivers* tab and click *Add*.
5. Click on *Have Disk*.
6. Insert the QLogic software drivers diskette in an appropriate drive.
7. Type the path to the NT driver. For example:  
A: \nt  
Click *OK*.
8. Select the *QLogic QLA2200 PCI Fibre Channel Adapter* and click *OK*.
9. When the driver is transferred to the system, click *Yes* to restart the system.

### 3.5

## Updating the Windows NT Driver

Perform the following steps if a Windows NT driver is already installed and you want to install an updated version of the driver.

1. Open a DOS command prompt window.
2. Change the current directory to the Windows NT driver directory. For example:

```
CD \WINNT\SYSTEM32\DRIVERS
```

3. Make a backup copy of the old driver. You can copy the file into the same directory with a .SAV extension indicating that it is the saved file. For example:

```
COPY QL2200.SYS QL2200.SAV
```

4. Insert the QLogic software drivers diskette with the updated driver in an appropriate drive.
5. Copy the new driver over the old driver. For example:

```
COPY A:\NT\QL2200.SYS
```

6. Remove the QLogic software drivers diskette.
7. Reboot your system to load the driver.

### 3.6

## Enabling Enhanced Scatter/Gather

Windows NT 4.0 includes enhanced scatter/gather list support for handling very large SCSI I/O transfers. Version 4.0 supports up to 256 scatter/gather segments of 4096 bytes each, allowing transfers of up to 1,048,576 bytes. For some disk drives, it is better to reduce the transfer size to 65,536 bytes. To reduce the transfer size, change the subkey value in the registry (see the README.TXT file for more information).



## Section 4

# NetWare Driver Installation

### 4.1

#### Introduction

This section provides instructions for installing the NetWare driver in an already installed Novell NetWare 4.1X or 5.X system.

### 4.2

#### NetWare Driver Files and Parameters

The following files on the QLogic software drivers diskette are provided for installation of the driver for the NetWare 4.1X or 5.X operating system:

- ☐ \NETWARE\QL2200.HAM – driver for NetWare 4.1X and 5.X
- ☐ \NETWARE\QL2200.DDI – installation information file for QL2200.HAM driver
- ☐ \NETWARE\QLNWCDRM.SYS – DOS CD-ROM driver used when installing NetWare from a SCSI or FC attached CD-ROM
- ☐ \NETWARE\README.TXT – helpful hints about the driver and setting options for NetWare 4.1X and 5.X

Be sure to review the README.TXT file for both new and changed information.

Load the QL2200.HAM driver with following parameters to customize the interface between the driver and Novell NetWare (see table 4-1).

**Table 4-1. QL2200.HAM Driver Parameters**

Parameter	Description
SLOT	Provides support for multiple QLA22xx boards and loads the driver for each board individually. This switch is mandatory if you have more than one board.
/LUN	Enables support for multiple LUN (logical unit number) devices. This switch is optional.

### 4.3

## Installing the NetWare Driver

The QL2200.HAM driver may not be compatible with NetWare versions earlier than 4.1X or 5.X.

**NOTE:** The LOAD command lines can be entered in your NetWare STARTUP.NCF file to load the driver automatically when your system boots.

Perform the following steps to install the NetWare driver in a previously installed NetWare 4.1X or 5.X system.

1. Place the QLogic software drivers diskette in an appropriate drive.
2. Copy the QL2200.HAM driver file from the diskette to the server root directory. For example:

```
COPY A:\NETWARE\QL2200.HAM C:\NWSERVER\
```

3. Load the driver at the NetWare server prompt by typing the LOAD command with the SLOT parameter (see table 4-1).

The following LOAD example works for a default (factory setting) QLA22xx board.

```
LOAD QL2200.HAM SLOT=X
```

Replace the X in the load line example with the slot identification number of the slot in which the board is installed.

4. If you are attaching multiple LUN devices, such as tape changers, add the /LUN switch to the LOAD line. For example:

```
LOAD QL2200.HAM SLOT=X /LUN
```

5. If ASPI support is required for the SCSI devices, you must load the NWASPI.CDM module, which is provided by NetWare. For example:

```
LOAD QL2200.HAM  
LOAD NWASPI.CDM
```

## *Section 5*

# Windows 9X Driver Installation

### 5.1

#### **Introduction**

This section provides instructions for installing the Windows 9X driver under the following operating system conditions:

- ☐ Initial installation of the Windows 95 operating system and the Windows 9X driver
- ☐ Installation of the Windows 9X driver in a previously installed Windows 95 operating system
- ☐ Initial installation of the Windows 98 operating system and the Windows 9X driver
- ☐ Installation of the Windows 9X driver in a previously installed Windows 98 operating system

### 5.2

#### **Windows 9X Driver Files**

The following files on the QLogic software drivers diskette are provided for installation of the Windows 9X driver:

- ☐ \WIN9X\QL2200.INF – driver installation script for the Windows 95 setup program
- ☐ \WIN9X\QL2200.MPD – Windows 9X driver
- ☐ \WIN9X\QL2200.CAT – digital signature catalog file needed for Windows 98 driver installation
- ☐ \WIN9X\README.TXT – helpful hints about the Windows 9X driver

Be sure to review the README.TXT file for both new and changed information.

### 5.3

#### **Driver Installation for Windows 95**

If Windows 95 is not installed on your system, perform the installation procedure in section 5.3.1 (retail version) or section 5.3.2 (OEM version); if Windows 95 (retail or OEM) is already installed on your system, perform the installation procedure in section 5.3.3.

### 5.3.1

## Installing Windows 95 (Retail Version) and the Windows 9X Driver

Perform the following steps to install the retail version of Windows 95 and the Windows 9X driver.

1. Make sure that MS-DOS 6.X is installed on the system boot disk.
2. Install the QLA22xx board and the peripheral devices.
3. Run the Windows 95 SETUP program by following the instructions provided with Windows 95.
4. After Windows 95 is installed and operational, click the *My Computer* icon, then the *Control Panel* icon.
5. In the *Control Panel* window, click the *System* icon and select the *Device Manager* tab.
6. Select *PCI SCSI Bus Controller* listed under *Other Devices*, then click *Properties*.
7. Select the *Driver* tab. Click *Change Driver*.
8. Select *SCSI Controllers*. Click *OK*.
9. Insert the QLogic software drivers diskette. Click *Have Disk*.
10. Enter <drive>:\WIN9X for the path to the driver. Click *OK*.
11. Select the *QLogic QLA2200 Fibre Channel Adapter*. Click *OK*.
12. Click *OK* once more to continue.
13. If the *Windows cannot determine if it can remove this device safely* dialog box appears, click *Cancel*. Do **not** click *Test*.

**CAUTION!** Clicking *Test* may lock the system. Rebooting the system results in normal operation.

14. Edit your CONFIG.SYS file to remove any QLogic drivers that may have been added for DOS support. These are not required for Windows 95.
15. Remove the QLogic software drivers diskette from the drive and reboot your system.

### 5.3.2

## Installing Windows 95 (OEM Version) and the Windows 9X Driver

Perform the following steps to install the OEM service release of Windows 95 and the Windows 9X driver.

1. Make sure that MS-DOS is installed on the system boot disk.
2. Install the QLA22xx board and the peripheral devices.
3. Run the Windows 95 SETUP program by following the instructions provided with Windows 95.
4. When Windows restarts, a dialog box displays that says *Do you want to see more about your computer not being configured for optimal performance*. Click *No*.
5. After Windows 95 is installed and operational, click the *My Computer* icon, then the *Control Panel* icon.
6. In the *Control Panel* window, click the *System* icon and select the *Device Manager* tab.
7. Select *PCI SCSI Bus Controller* listed under *Other Devices*, then click *Properties*.
8. Select the *Driver* tab. Click *Update Driver*.
9. Insert the QLogic software drivers diskette and click *Yes* in the *Update Device Driver Wizard* dialog box.
10. Click *Other Locations* when the *Update Device Driver Wizard* dialog box returns.
11. Enter <drive>:\WIN9X for the path to the driver. Click *OK*.
12. Click *Finish* when the wizard finds the updated driver for the *QLogic QLA2000 Fibre Channel Adapter*.
13. Click *OK* when prompted to insert the *QLogic Software Drivers*.
14. Enter <drive>:\WIN9X for the path to the QLogic driver. Click *OK*.
15. If the *Windows cannot determine if it can remove this device safely* dialog box appears, click *Cancel*. Do **not** click *Test*.

**CAUTION!** Clicking *Test* may lock the system. Rebooting the system results in normal operation.

16. Edit your CONFIG.SYS file to remove any QLogic drivers that may have been added for DOS support. These are not required for Windows 95.
17. Remove the QLogic software drivers diskette from the drive and reboot your system.

### 5.3.3

#### Installing the Windows 9X Driver

Perform the following steps to install the Windows 9X driver on a system with the **Windows 95 retail** package already installed.

1. Shut down Windows 95 and install your QLA22xx board and peripheral devices.
2. Reboot your system. The *New Hardware Found* window pops up after detecting the *PCI SCSI Bus Controller*.
3. Insert the QLogic software drivers diskette and select the option to *Load driver from disk provided by the hardware manufacturer*. Click *OK*.
4. Enter <drive>:\WIN9X for the path to the driver. Click *OK*.

Perform the following steps to install the Windows 9X driver on a system with the **Windows 95 OEM** service release already installed.

1. Shut down Windows 95 and install your QLA22xx board and peripheral devices.
2. Reboot your system. The *New Hardware Found* window pops up after detecting the *PCI SCSI Bus Controller*.
3. Insert the QLogic software drivers diskette. Click *Next*.
4. Click *Other Locations* in the *Update Device Driver Wizard* dialog box.
5. Enter <drive>:\WIN9X for the path to the driver. Click *OK*.
6. Click *Finish* when the wizard finds the updated driver for the *QLogic QLA2000 Fibre Channel Adapter*.
7. Click *OK* when prompted to insert the *QLogic Software Drivers*.
8. Enter <drive>:\WIN9X for the path to the driver. Click *OK*.
9. Remove the QLogic software drivers diskette from the drive and reboot your system.

## 5.4

### Driver Installation for Windows 98

If Windows 98 is not on your system, perform the installation procedure in section 5.4.1 (SCSI CD-ROM) or section 5.4.2 (IDE CD-ROM). If Windows 98 is already installed on your system, perform the installation procedure in section 5.4.3.

#### 5.4.1

### Installing Windows 98 and the Windows 9X Driver from a SCSI CD-ROM

Perform the following steps to install Windows 98 and the Windows 9X driver from a SCSI CD-ROM.

1. Install the QLA22xx board and peripheral devices.
2. Create a bootable partition on your hard drive and format it.

**NOTE:** The Windows 98 bootable distribution diskette from Microsoft does not contain the necessary file (Format.com) that creates a bootable partition. The Windows 98 procedure removes this file from the CD-ROM during the installation process. To successfully install Windows 98 from a SCSI CD-ROM attached to the QLogic QLA22xx board, you must create a bootable partition on your hard drive from a DOS or Windows 95 boot disk.

3. Boot to the root directory. For example:

C:\

4. Insert the QLogic software drivers diskette and run `SETUP.BAT`.
5. When you are prompted for the `MSCDEX.EXE`, insert the Windows 98 boot disk.
6. Reboot your system and run the Windows 98 `SETUP` program from the CD.
7. After Windows 98 is installed and operational, double-click the *My Computer* icon, then the *Control Panel* icon.
8. In the *Control Panel* window, double-click the *System* icon and select the *Device Manager* tab.
9. Select *PCI SCSI Bus Controller* listed under *Other devices*, then click *Properties*.
10. Click *Driver*, then click *Update Driver*.
11. Insert the QLogic software drivers diskette. Click *Next* in the *Update Device Driver Wizard* dialog box.

12. Click *Display a list of all the drivers in a specific location, so you can select the driver you want*. Click *Next*.
13. If you are prompted to select the device type, click *SCSI Controllers*. Click *Next*.
14. Click *Have Disk* and type <drive>:\WIN9X for the path to the QLogic driver. Click *OK*.
15. Click *QLogic QLA2000 Fibre Channel Adaptor*. Click *Next*.
16. Windows 98 displays your QLogic adapter choice and path to the QLogic driver. Click *Next*.
17. Click *Finish* when the wizard finds the updated driver for the *QLogic QLA2000 Fibre Channel Adapter*.
18. Remove the QLogic software drivers diskette from the drive and reboot your system.

#### 5.4.2

### Installing Windows 98 and the Windows 9X Driver from an IDE CD-ROM

Perform the following steps to install Windows 98 and the Windows 9X driver from an IDE CD-ROM.

1. Install the QLA22xx board and peripheral devices.
2. Connect the IDE CD-ROM to the IDE controller.
3. Insert the Windows 98 boot disk.
4. Reboot your system.
5. The Microsoft Windows 98 Startup Menu opens and prompts you to select a startup option.

Microsoft Windows 98 Startup Menu

1. Start Windows 98 Setup from CD-ROM.
2. Start computer with CD-ROM support.
3. Start computer without CD-ROM support.

Enter a choice: 1

6. Press the <ENTER> key to accept the default.
7. Install Windows 98 according to the manufacturer's instructions.
8. After Windows 98 is installed and operational, double-click the *My Computer* icon, then the *Control Panel* icon.

9. In the *Control Panel* window, double-click the *System* icon and select the *Device Manager* tab.
10. Select *PCI SCSI Bus Controller* listed under *Other devices*, then click *Properties*.
11. Click *Driver*, then click *Update Driver*.
12. Insert the QLogic software drivers diskette. Click *Next* in the *Update Device Driver Wizard* dialog box.
13. Click *Display a list of all the drivers in a specific location, so you can select the driver you want*. Click *Next*.
14. If you are prompted to select the device type, click *SCSI Controllers*. Click *Next*.
15. Click *Have Disk* and type <drive>:\WIN9X for the path to the QLogic driver. Click *OK*.
16. Click *QLogic QLA2000 Fibre Channel Adaptor*. Click *Next*.
17. Windows 98 displays your QLogic adapter choice and path to the QLogic driver. Click *Next*.
18. Click *Finish* when the wizard finds the updated driver for the *QLogic QLA2000 Fibre Channel Adapter*.
19. Remove the QLogic software drivers diskette from the drive and reboot your system.

### 5.4.3

#### **Installing the Windows 9X Driver**

Perform the following steps to install the Windows 9X driver on a system with the Windows 98 operating system already installed.

1. Install the QLA22xx board and peripheral devices. The *New Hardware Found* window pops up after detecting the *PCI SCSI Bus Controller*.
2. Insert the QLogic software drivers diskette. Click *Next*.
3. Click *Display a list of all the drivers in a specific location so you can select the driver you want*. Click *Next*.
4. If you are prompted to select the device type, click *SCSI Controllers*. Click *Next*.
5. Click *Have Disk* and type <drive>:\WIN9X for the path to the QLogic driver. Click *OK*.
6. Click *QLogic QLA2000 Fibre Channel Adaptor*. Click *Next*.

7. Windows 98 displays your QLogic adapter choice and path to the QLogic driver. Click *Next*.
8. Click *Finish* when the wizard finds the updated driver for the *QLogic QLA2000 Fibre Channel Adapter*.
9. Remove the QLogic software drivers diskette from the drive and reboot your system.